

**GIS-based Watershed Management for Sustainable Development in Rural Areas  
- A Pilot Study**

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**Abstract**

In the present age of emerging technologies, a combination of spatial and non-spatial databases using Geographic Information System (GIS) techniques provides not only the answers for macro-level planning but also state-of-the-art models for micro-level planning for sustainable development in rural areas. This paper describes a pilot study, undertaken at the instance of the Ministry of Rural Development, Govt. of India, for Malshirus Watershed with the objective of generating action plans for conservation of land and water resources, using GIS & Remote Sensing techniques. In the present study, spatial database on soils, land use, contours, geology, drainage etc. is created using Survey of India topographical maps, cadastral maps, ground truth and remotely sensed data using SPANS (Spatial Analysis System) GIS. This primary resource data is used to derive secondary vector layers and quad trees (data structures) corresponding to slope, erosion class, soil depth, land capability etc. Rules are framed to arrive at certain suitable solutions to each of the area-specific problems identified for the watershed. The study helped generate a number of macro-level and location-specific action plan maps.

**[Presented in 6th GeoAsia Pacific Conference, Bangkok, Thailand Oct' 2000]**